

## CLAIMS

What is claimed is:

1. A drum washing machine, comprising:  
a water tub including a lower portion;  
a rotary tub rotatably provided in the water tub; and  
a detergent dissolving unit to dissolve a detergent, initially contained in the lower portion of the water tub in water initially contained in the water tub, outside of the water tub and provided with a first end, which is connected to an inside of the water tub
2. The drum washing machine according to claim 1, wherein the detergent dissolving unit comprises:  
a detergent dissolution pipe having a first end connected with the inside of the water tub and a second end extended outside of the water tub; and  
a pump to pump the water and the detergent contained in the lower portion of the water tub to the detergent dissolution pipe.
3. The drum washing machine according to claim 2, wherein the detergent dissolving unit comprises a control unit to operate the pump according to preset ON/OFF periods to reciprocate the water and the detergent contained in the lower portion of the water tub between the water tub and the detergent dissolution pipe.
4. The drum washing machine according to claim 2, wherein the detergent dissolving unit further comprises a detergent dissolution space having a diameter greater than that of the detergent dissolution pipe formed at the detergent dissolution pipe.
5. The drum washing machine according to claim 2, wherein the second end of the detergent dissolution pipe is provided at an inlet of the rotary tub.
6. The drum washing machine according to claim 5, wherein the detergent dissolving unit further comprises a spray nozzle provided at the second end of the detergent dissolution pipe.

7. The drum washing machine according to claim 2, wherein the detergent dissolving unit further comprises a valve mounted at the detergent dissolution pipe to selectively open and close a flow passage.

8. A method of controlling a drum washing machine, the drum washing machine having a water tub, a rotary tub, and a detergent dissolving unit provided outside of the water tub, the method comprising:

feeding water and a detergent into the water tub; and  
reciprocating the detergent and the water between the water tub and the detergent dissolving unit to dissolve the detergent.

9. The drum washing machine control method according to claim 8, further comprising rotating the rotary tub, and feeding a detergent solution, in which the detergent dissolves in water by the reciprocation, into the rotary tub while the rotary tub is rotated.

10. The drum washing machine control method according to claim 9, further comprising spraying and feeding a certain amount of water into the rotary tub after feeding the detergent solution into the rotary tub.

11. The drum washing machine control method according to claim 9, further comprising rotating the rotary tub in opposite directions at a low speed after completely feeding the detergent solution.

12. A drum washing machine, comprising:  
a cylindrical water tub, to initially contain detergent and water, having a first end to be selectively opened and closed;  
a cylindrical rotary tub rotatably provided in the water tub and opened at a first end corresponding with the first end of the cylindrical water tub; and  
a detergent dissolving unit, to dissolve the detergent and the water, provided outside of the water tub and provided with a first end connected to an inside of the water tub.

13. The drum washing machine according to claim 12, wherein the detergent dissolving unit comprises a detergent dissolution pipe having a first end connected with the inside of the water tub and a second end extended outside of the water tub.

14. The drum washing machine according to claim 13, wherein the detergent dissolving unit comprises a pump to pump the water and the detergent contained in the lower portion of the water tub to the detergent dissolution pipe.

15. The drum washing machine according to claim 14, wherein the detergent dissolving unit comprises a control unit to operate the pump according to preset ON/OFF periods to reciprocate the water and the detergent contained in the lower portion of the water tub between the water tub and the detergent dissolution pipe.

16. The drum washing machine according to claim 12, wherein the detergent dissolving unit further comprises a detergent dissolution space, having a diameter greater than that of the detergent dissolution pipe, formed at the detergent dissolution pipe.

17. The drum washing machine according to claim 12, wherein the second end of the detergent dissolution pipe is provided at an inlet of the rotary tub.

18. The drum washing machine according to claim 17, wherein the detergent dissolving unit further comprises a spray nozzle provided at the second end of the detergent dissolution pipe.

19. The drum washing machine according to claim 12, wherein the detergent dissolving unit further comprises a valve mounted at the detergent dissolution pipe to selectively open and close a flow passage.

20. A drum washing machine, comprising:  
a cylindrical water tub, to initially contain detergent and water, having a first end to be selectively opened and closed;  
a cylindrical rotary tub rotatably provided in the water tub and opened at a first end corresponding with the first end of the cylindrical water tub; and

a detergent dissolving unit, to increase a solubility of the detergent in the water, provided outside of the water tub, and provided with a first end connected to an inside of the water tub.

21. A drum washing machine, comprising:  
a cylindrical water tub, to initially contain detergent and water, having a first end to be selectively opened and closed;  
a cylindrical rotary tub rotatably provided in the water tub and opened at a first end corresponding with the first end of the cylindrical water tub; and  
a detergent dissolving unit provided outside of the water tub, to partially dissolve the detergent in the water outside of the water tub, and having a first end connected to an inside of the water tub.

22. A method of controlling a drum washing machine in which laundry is laundered, the drum washing machine having a water tub, a rotary tub in which the laundry is held, and a detergent dissolving unit provided outside of the water tub, the method comprising:  
feeding water and a detergent into the water tub; and  
dissolving the detergent into the water partially outside the water tub;  
effectively feeding the dissolved detergent to the laundry.

23. The drum washing machine control method according to claim 22, wherein the effective feeding further comprises rotating the rotary tub at a high speed.

24. The drum washing machine control method according to claim 22, further comprising reciprocating the rotary tub in the water tub to increase a dissolving speed of the detergent into the water.

25. The drum washing machine control method according to claim 23, further comprising spraying and feeding a certain amount of water into the rotary tub after feeding the detergent solution into the rotary tub.

26. The drum washing machine control method according to claim 23, further comprising rotating the rotary tub in opposite directions at a low speed after completely feeding the detergent solution.